

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 2-29-16

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: USACE Galveston District, Harris County Flood Control District, SWG-2015-00722, WET002-PEM

C. PROJECT LOCATION AND BACKGROUND INFORMATION: Katy Hockley Tract.

State: Texas County/parish/borough: Harris County City: Hockley
Center coordinates of site (lat/long in degree decimal format): Lat. 29.927843° **N**, Long. -95.812768° **W**.
Universal Transverse Mercator: Zone 15R 228464 meters E, 3314117 meters N

Name of nearest waterbody: Cypress Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Cypress Creek

Name of watershed or Hydrologic Unit Code (HUC): Spring--12040102

- Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
 Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- Office (Desk) Determination. Date: 02-29-2016
 Field Determination. Date(s): December 17, 2015

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

- Waters subject to the ebb and flow of the tide.
 Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

- TNWs, including territorial seas
 Wetlands adjacent to TNWs
 Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs
 Non-RPWs that flow directly or indirectly into TNWs
 Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
 Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 Impoundments of jurisdictional waters
 Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.
Wetlands: 0.004 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known): N/A.

2. Non-regulated waters/wetlands (check if applicable):³

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: .

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: .

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is “adjacent”:

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

(i) **General Area Conditions:**

Watershed size: 1983.63 **acres**

Drainage area: 203,570.5 **acres**

Average annual rainfall: 42.66 (USDA) inches

Average annual snowfall: 0.0 inches

(ii) **Physical Characteristics:**

(a) **Relationship with TNW:**

Tributary flows directly into TNW.

Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **30 (or more)** river miles from TNW.

Project waters are **1 (or less)** river miles from RPW.

Project waters are **20-25** aerial (straight) miles from TNW.

Project waters are **1 (or less)** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: N/A.

Identify flow route to TNW⁵: Cypress Creek flows directly into the traditional navigable portion of Cypress Creek, the nearest TNW..

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: 4.

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain: .
 Manipulated (man-altered). Explain: Appears it was deepened to increase capacity. Portions of

Cypress Creek have been modified through channelization and armoring, particularly in urban areas.

Tributary properties with respect to top of bank (estimate):

Average width: 25 feet

Average depth: 2 feet

Average side slopes: **2:1**.

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover:
 Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Generally stable; however portions are highly eroding.

Presence of run/riffle/pool complexes. Explain: N/A.

Tributary geometry: **Meandering**

Tributary gradient (approximate average slope): 1-2 %

(c) Flow:

Tributary provides for: **Seasonal flow**

Estimate average number of flow events in review area/year: **20 (or greater)**

Describe flow regime: relatively permanent.

Other information on duration and volume: Tributary is perennial.

Surface flow is: **Confined**. Characteristics: In the area in which the wetlands are located, the floodplain is broad and sheetflow within the Katy Prairie often result from intense rain events; however, Cypress Creek itself has a well-defined bed and banks..

Subsurface flow: **Unknown**. Explain findings: .

Dye (or other) test performed: .

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):
 Discontinuous OHWM.⁷ Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by: Mean High Water Mark indicated by:
 oil or scum line along shore objects survey to available datum;
 fine shell or debris deposits (foreshore) physical markings;
 physical markings/characteristics vegetation lines/changes in vegetation types.
 tidal gauges
 other (list):

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: Water color was clear at time of examination, flow was discreet.

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷Ibid.

Identify specific pollutants, if known: Cypress Creek is listed as impaired due to bacteria.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width): N/A.
- Wetland fringe. Characteristics: N/A.
- Habitat for:
 - Federally Listed species. Explain findings: .
 - Fish/spawn areas. Explain findings: .
 - Other environmentally-sensitive species. Explain findings: .
 - Aquatic/wildlife diversity. Explain findings: .

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: 0.004 acres

Wetland type. Explain: Palustrine emergent.

Wetland quality. Explain: Low quality. The wetland appears to be a remnant wetland that has been significantly altered through agriculture practices.

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: Wetlands are located within the 100-year floodplain of the unnamed RPW and only experience flow to the RPW during flood events.

Surface flow is: **Overland sheetflow**

Characteristics: Wetlands sheetflow over land to Cypress Creek during flood events.

Subsurface flow: **Unknown**. Explain findings: .

Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain: The wetland is located within the 100-year floodplain of Cypress Creek and only experiences flow to the RPW during flood events.

Ecological connection. Explain: .

Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **25-30** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters**.

Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: No surface water was present during wetland delineation.

Identify specific pollutants, if known: N/A.

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):N/A.
- Vegetation type/percent cover. Explain: Approaching 100% herbaceous cover.
- Habitat for:
 - Federally Listed species. Explain findings:N/A.
 - Fish/spawn areas. Explain findings:N/A.
 - Other environmentally-sensitive species. Explain findings:N/A.
 - Aquatic/wildlife diversity. Explain findings:N/A.

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **30 (or more)**

Approximately (6123.81) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
(See attached table-7 pages)			

Summarize overall biological, chemical and physical functions being performed:

Cypress Creek is a relatively permanent water and a fourth order stream within this relevant reach, which is approximately 42.8 miles long and flows directly into the traditional navigable water portion of Cypress Creek. The relevant reach starts in Mound Creek approximately 2 miles south of Waller, Texas (approximately 12.5 miles upstream of the project site), continues in Cypress Creek, which is formed by the confluence of Mound Creek and Snake Creek, and ends at the traditional navigable water portion of Cypress Creek which is at Stuebner Airline Road, in Houston (approximately 30.3 miles downstream of the project site). The relevant reach is located within a rapidly developing area that was historically agricultural fields. The agricultural fields have gradually been developed into residential subdivisions and commercial properties. The upstream portion of the relevant reach is still located primarily in agricultural lands.

There are 324 offsite adjacent wetlands within this relevant reach that are located northwest and east of the tract and total approximately 6,123.81 acres, based on the NWI, FEMA FIRMs, and Google Earth aerial photos. Approximately 1959.0 acres of these wetlands are abutting Mound and/or Cypress Creek. Of these abutting wetlands, approximately 1365.97 acres are emergent, 570.43 acres are forested and 22.6 acres are scrub-shrub wetlands. Approximately 4,164.81 acres of these adjacent wetlands are not directly abutting Mound and/or Cypress Creek, of which approximately 3,262.44 acres are emergent, 477.81 acres are forested and 424.56 acres are scrub-shrub wetlands. These wetlands range from approximately 0.1 to 42 river miles and from approximately 0.15 to 25 aerial miles from the traditional navigable portion of Cypress Creek, the nearest Traditional Navigable Water (TNW). Cypress Creek flows into Spring Creek, which flows into the West Fork San Jacinto River, which flows into Lake Houston; a primary source of drinking water for the Houston area. One wetland on the tract totaling 0.004 acre is adjacent to this relevant reach of Cypress Creek. The wetland is neighboring (not abutting) Cypress Creek. Based on our analysis, we determined that there are a total of 339 adjacent wetlands located within this relevant reach of Cypress Creek. These wetlands abut or are neighboring Mound and/or Cypress Creeks and total approximately 6,213 acres.

The Corps finds evidence/data to support the statement that these waters (this relevant reach of Cypress Creek and all similarly situated adjacent wetlands within this relevant reach) provide more than a speculative or insubstantial effect upon the chemical integrity of the downstream TNW, which this relevant reach flows into. There is a direct surface hydrologic connection between this approximate 42.8-mile relevant reach of Mound and Cypress Creeks and the nearest TNW, also Cypress Creek. The approximate 6,213 acres of adjacent wetlands provide important filtration to aid in the elimination and treatment of bacteria to the downstream TNW; it also serves to aid in the reduction of thermal and chemical pollutants flowing into Cypress Creek. Cypress Creek is identified by the TCEQ as a 303(d) impaired water for bacteria contamination; therefore the wetlands in this reach provide important removal properties associated with the removal of bacteria. The wetlands are situated in a rapidly developing area that is converting farm land to residential and commercial properties. The aquatic resources within this reach provide more than speculative or insubstantial effects that are inseparably bound to the chemical integrity of the downstream TNW.

Within this relevant reach of Mound and Cypress Creeks, there are approximately 6,213 acres of similarly situated wetlands abutting or neighboring Mound and/or Cypress Creeks. The TNW portion of Cypress Creek is immediately downstream of this relevant reach and approximately 5 miles upstream of Lake Houston; a major source of drinking water for the Houston area. The retention of water and retardation of overbank flooding associated with adjacent wetlands is vital to maintain and protect the physical integrity of the downstream TNW. The effects of removing approximately 1,959 acres of abutting wetlands would increase the velocity and flow into Cypress Creek and the West Fork San Jacinto River, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW; and potentially impact the dam at Lake Houston. Increased flow will increase "out of bank" flooding and scouring, resulting in loss of property and the physical attributes of the TNW. Therefore, the aquatic resources within this reach provide more than speculative or insubstantial effects that are inseparably bound to maintain the physical integrity of the downstream TNW.

There are no known species found in this review area that require the aquatic resources of Mound or the non-TNW portion of Cypress Creek and its adjacent wetlands and the waters of the TNW to fulfill their life cycle requirements. Cypress Creek is a RPW and has a direct hydrologic connection with the TNW; as such, it is more likely to have aquatic organisms that require both features (TNW and waters in this reach). It is highly feasible that species of fishes and/or invertebrates utilize Cypress Creek for portions of their life cycles; but there is insufficient evidence to identify specific species that requires both the aquatic resources within this relevant reach of Mound and Cypress Creeks and the waters of the TNW to fulfill life cycle requirements. The abutting and neighboring wetlands aid in providing species habitat, shelter from predators, and detritus and nutrients as a food source. Therefore, it is the Corps' conclusion, that the aquatic resources within this relevant reach of Mound and Cypress Creek, although speculative, provide more than an important effect on the biological integrity of the downstream TNW.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 42.8-mile relevant reach of Mound and Cypress Creeks and its 6,213 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstantial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Cypress Creek). In conclusion, it is our opinion that this relevant reach of Mound and Cypress Creeks and its adjacent wetlands are waters of the United States subject to Section 404 of the Clean Water Act.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: This relevant reach of Mound and Cypress Creeks is a relatively permanent water and a fourth order stream that flows into the traditional navigable water portion Cypress Creek, the downstream TNW. There are approximately 1,959 acres of abutting wetlands and 4,254 acres of neighboring wetlands. This relevant reach of Mound and Cypress Creeks and its adjacent wetlands provide important filtration to aid in the elimination and treatment of bacteria as well as thermal and chemical pollutants. The system also retains flood waters and reduces overbank flooding downstream, thereby decreasing the velocity and amount of water flowing downstream into the West Fork San Jacinto River and Lake Houston (water supply reservoir for Houston area). Retaining flood waters also reduces scouring and the loss of property as well as preserving the physical attributes of the downstream TNW. Mound and Cypress Creeks and their adjacent wetlands also likely support aquatic organisms and the adjacent wetlands provide species habitat, shelter from predators and produce nutrients and detritus as a food source for downstream organisms. Based on this information, we determined that this relevant reach of Mound and Cypress Creeks and its adjacent wetlands provide more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of the downstream TNW (Cypress Creek).

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
 TNWs: linear feet width (ft), Or, acres.
 Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Water is visible in Cypress Creek in all of the Google Earth aerial photos from 1944 to present. Therefore, it is a perennial relatively permanent water.
- Tributaries of TNW where tributaries have continuous flow “seasonally” (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
 - Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
 - Wetlands directly abutting an RPW where tributaries typically flow “seasonally.” Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **0.004** acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from “waters of the U.S.,” or
- Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

⁸See Footnote # 3.

⁹ To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain: .
- Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.
Identify type(s) of waters: .
- Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Belaire Environmental, Inc.
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: 1204010201.
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 1":24,000' Warren Lake Quadrangle (1980).
- USDA Natural Resources Conservation Service Soil Survey. Citation: <http://soildatamart.nrcs.usda.gov/>.
- National wetlands inventory map(s). Cite name: .
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: Panels 48201C0390M and 48201395M.
- 100-year Floodplain Elevation is: approximately 163 feet above mean sea level (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): Google Earth 1943-2015.

¹⁰ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
 - Applicable/supporting case law:
 - Applicable/supporting scientific literature:
 - Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD: Cypress Creek is a relatively permanent water and a fourth order stream within this relevant reach, which is approximately 42.8 miles long and flows directly into the traditional navigable water portion of Cypress Creek. The relevant reach starts in Mound Creek approximately 2 miles south of Waller, Texas (approximately 12.5 miles upstream of the project site), continues in Cypress Creek, which is formed by the confluence of Mound Creek and Snake Creek, and ends at the traditional navigable water portion of Cypress Creek which is at Stuebner Airline Road, in Houston (approximately 30.3 miles downstream of the project site). The relevant reach is located within a rapidly developing area that was historically agricultural fields. The agricultural fields have gradually been developed into residential subdivisions and commercial properties. The upstream portion of the relevant reach is still located primarily in agricultural lands.

There are 324 offsite adjacent wetlands within this relevant reach that are located northwest and east of the tract and total approximately 6,123.81 acres, based on the NWI, FEMA FIRMs, and Google Earth aerial photos. Approximately 1959.0 acres of these wetlands are abutting Mound and/or Cypress Creek. Of these abutting wetlands, approximately 1365.97 acres are emergent, 570.43 acres are forested and 22.6 acres are scrub-shrub wetlands. Approximately 4,164.81 acres of these adjacent wetlands are not directly abutting Mound and/or Cypress Creek, of which approximately 3,262.44 acres are emergent, 477.81 acres are forested and 424.56 acres are scrub-shrub wetlands. These wetlands range from approximately 0.1 to 42 river miles and from approximately 0.15 to 25 aerial miles from the traditional navigable portion of Cypress Creek, the nearest Traditional Navigable Water (TNW). Cypress Creek flows into Spring Creek, which flows into the West Fork San Jacinto River, which flows into Lake Houston; a primary source of drinking water for the Houston area. One wetland on the tract totaling 0.004 acre is adjacent to this relevant reach of Cypress Creek. The wetland is neighboring (not abutting) Cypress Creek. Based on our analysis, we determined that there are a total of 339 adjacent wetlands located within this relevant reach of Cypress Creek. These wetlands abut or are neighboring Mound and/or Cypress Creeks and total approximately 6,213 acres.

The Corps did find evidence/data to support the statement that these waters (this relevant reach of Cypress Creek and all similarly situated adjacent wetlands within this relevant reach) provide more than a speculative or insubstantial effect upon the chemical integrity of the downstream TNW, which this relevant reach flows into. There is a direct surface hydrologic connection between this approximate 42.8-mile relevant reach of Mound and Cypress Creeks and the nearest TNW, also Cypress Creek. The approximate 6,213 acres of adjacent wetlands provide important filtration to aid in the elimination and treatment of bacteria to the downstream TNW; it also serves to aid in the reduction of thermal and chemical pollutants flowing into Cypress Creek. Cypress Creek is identified by the TCEQ as a 303(d) impaired water for bacteria contamination; therefore the wetlands in this reach provide important removal properties associated with the removal of bacteria. The wetlands are situated in a rapidly developing area that is converting farm land to residential and commercial properties. The aquatic resources within this reach provide more than speculative or insubstantial effects that are inseparably bound to the chemical integrity of the downstream TNW.

Within this relevant reach of Mound and Cypress Creeks, there are approximately 6,213 acres of similarly situated wetlands abutting or neighboring Mound and/or Cypress Creeks. The TNW portion of Cypress Creek is immediately downstream of this relevant reach and approximately 5 miles upstream of Lake Houston; a major source of drinking water for the Houston area. The retention of water and retardation of overbank flooding associated with adjacent wetlands is vital to maintain and protect the physical integrity of the downstream TNW. The effects of removing approximately 1,959 acres of abutting wetlands would increase the velocity and flow into Cypress Creek and the West Fork San Jacinto River, resulting in more than a speculative or insubstantial effect upon the physical attributes of the downstream TNW; and potentially impact the dam at Lake Houston. Increased flow will increase "out of bank" flooding and scouring, resulting in loss of property and the physical attributes of the TNW. Therefore, the aquatic resources within this reach provide more than speculative or insubstantial effects that are inseparably bound to maintain the physical integrity of the downstream TNW.

There are no known species found in this review area that require the aquatic resources of Mound or the non-TNW portion of Cypress Creek and its adjacent wetlands and the waters of the TNW to fulfill their life cycle requirements. Cypress Creek is a RPW and has a direct hydrologic connection with the TNW; as such, it is more likely to have aquatic organisms that require both features (TNW and waters in this reach). It is highly feasible that species of fishes and/or invertebrates utilize Cypress Creek for portions of their life cycles; but there is insufficient evidence to identify specific species that requires both the aquatic resources within this relevant reach of Mound and Cypress Creeks and the waters of the TNW to fulfill life cycle requirements. The abutting and neighboring wetlands aid in providing species habitat, shelter from predators, and detritus and nutrients as a food source. Therefore, it is the Corps' conclusion, that the aquatic resources within this relevant reach of Mound and Cypress Creek, although speculative, provide more than an important effect on the biological integrity of the downstream TNW.

In conclusion, we have determined that there is sufficient evidence to support the statement that the aquatic resources within this approximate 42.8-mile relevant reach of Mound and Cypress Creeks and its 6,213 acres of adjacent wetlands provide a significant nexus (more than speculative or insubstantial effect) to the chemical, physical and/or biological integrity of the downstream TNW (Cypress Creek). In conclusion, it is our opinion that this relevant reach of Mound and Cypress Creeks and its adjacent wetlands are waters of the United States subject to Section 404 of the Clean Water Act.

Directly Abuts (Y/N)? Size (In Acres) Directly Abuts (Y/N)? Size (In Acres) Directly Abuts (Y/N)? Size (In Acres)
See Attachment (7 pages)

Wetlands on Project Site within this Relevant Reach

Wetland	Latitude	Longitude	UTM Zone	UTM Easting	UTM Northing	Acres
WET002	29.927843 N	-95.812768 W	15	228464	3314117	0.004.